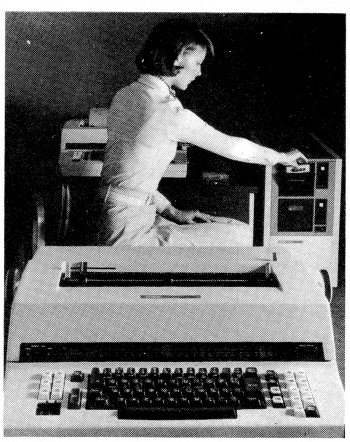
The word processing interface to typesetting

A review of the physical interfaces between word processing media and typesetting processes

Redactron

Wang



Xerox

IBM

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Word Processing, in its narrowest definition, refers to equipment specially designed for the input, editing, and output of textual information. In most cases the output is either a typewriter or some form of line printer. Another form of output is *typesetting.* Since all word processors store information in coded form on some type of recorded medium, it is possible to "read" the medium and convert the coding in order to use the data for input to a typesetting system. This Report covers the various alternatives for accomplishing this.

Two parts to every interface

An interface is a method or device for facilitating communication between machines and other machines (or even between machines and people). The first step in interfacing involves the physical acceptance of the recorded medium or the transmission of a signal from one device to another. The second step is the "translation" of the *coding system* of one device into the coding system of another device. The recorded media of word processing include cassette, cartridge, card and other magnetic methods. The standard medium of typesetting is paper tape. Coding for word processing is usually a modified ASCII, although there is no standardization, and the coding for typesetting is usually TTS (TeleTypeSetter) with modifications, although there are no real standards here either.

The typesetting process

Most typesetting devices incorporate automatic functions for hyphenating words and justifying margins. Indentions for paragraphs and mixing of type styles (regular to *italic*) are also automatic. However, to instruct the typesetting device in performing any action that affects the output format of the information it is necessary to insert typesetting *commands* in the data. These commands, or instructions, tell the typesetter how to typeset the information being input. Commands may be inserted by the originator or later by a typesetting specialist. In any case, any interface must must take into consideration the command requirements of the particular typesetting device or system.

Direct interface

The most direct method for interfacing word processing to typesetting is to connect a reader for the recorded medium directly to the typesetter. The medium is then read and the information re-coded so that signals enter the typesetter in a manner that emulates a paper tape reader. Most direct interfaces to typesetting cable connect to a point just behind the paper tape reader and translate the recorded data to TTS and send it to the typesetter as though it came from paper tape. Most word processing devices use serial data encoding; most typesetting devices use parallel data encoding. The "translation" part of the interface must usually perform this serial-to-parallel conversion.

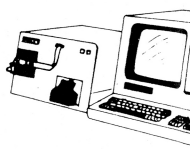
Indirect interface

Since paper tape is such a common medium in the typesetting process, some interfaces convert the recorded information from the word processing device to paper tape—which is then input to the typesetter. Indirect interfaces usually convert from one medium to another more commonly used medium. This type of interface may be as simple as a reader for the recorded medium connected to a paper tape punch or it could be a device or system into which the information is input, operated upon and then output as another form of media. An example of this is an editing terminal that can accept word processing media. It allows the operator to edit the information or insert commands electronically and then produces a paper tape to run the typesetter. This method permits human intervention during the conversion of the data.

Varicomp 200 RO

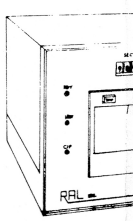
Varisystems 100 MC

Varisystems 400 RW



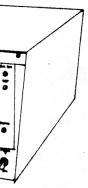
Varityper VTR-0200 Cass

Varityper VTR-0200 Casse



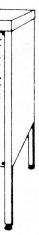
Raymond Automatio

Graphic Products Dc-203

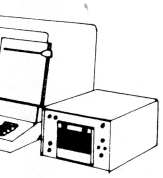


Cassette Reader

GC Mag Card Unit

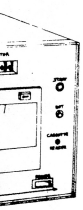


Dual Cassette Unit



ette Reader to Edit/Set

ette Reader to 744/748



n Cassette Reader

3 MT/ST/SC Interface

Advantages and disadvantages of direct/indirect interfacing

The major disadvantage to direct interfacing arises when the originator does not insert the commands for typesetting. The recorded medium must then be played back on the word processor in order to insert the commands. Since most word processors have highly effective search and edit capabilities, this action is not a significant disadvantage if the person who is editing in the commands is accurate and efficient. The direct method eliminates the possible problems of dealing with multiple forms of media. In general, magnetic media is less likely to read or record incorrectly than paper media. Indirect interfacing does allow you to perform more than one function—you can edit the information and convert it more or less simultaneously. Many practicioners advocate inserting commands at the video editing terminal. They claim that it is faster and more effective than inserting commands on a typewriter-oriented word processor.

Problems arise from lack of standardization

For the typesetting service or other organization that wishes to accept information prepared on a variety of word processors, it is necessary to acquire a separate interface for each type of word processor. Even though a Phillips cassette may be used, the method of encoding the data and the coding system are thoroughly different from one device to another. One of the potential methods for solving this is via a communications system that converts the recorded medium on one end of a telephone line to a standard transmission code and then transmits it to a receiving end where the data is recorded on one common medium. This would mean that output from any word processor would be converted to a transmission code (such as RS232 systems) and converted again on the receiving end into the typesetter code. In all other cases, the lack of standardization requires separate and distinct interfaces.

Other alternatives

Interfacing can also be accomplished on a service basis. For instance, Telesystems Network in Chicago provides a conversion service that takes IBM MT/ST cartridges and converts them to 9-track computer magnetic tape and then converts that to IBM magnetic cards or to communications transmission. There are other firms that provide a similar service.

Cautions

The presence of magnetic media is not always indicative or word processing. Many typesetting-related peripherals presently utilize magnetic tape cassettes or floppy disks. This does not mean that they can interface to word processing media. In most cases they can only record and playback information for the device in use. In making the conversion from the word processor to typesetting the interface must take into account characters and commands that exceed the number of typewriter keys. Thus it is necessary to "double up" by typing multiple keystrokes for typesetting functions and special characters. Review the keystroking method established. As much "intelligence" as possible should be placed in the interface so that the operator does not have to key intricate sequences. A word processing device should not be made to emulate a typesetting keyboard.

Opportunities

The interface between word processing and typesetting is one of the fastest growing areas of the graphic arts. The need for aesthetic output of information in a form that conserves paper by putting more data on a page than typewriting can, also reduces printing and postal costs. There is a natural relationship between word processing and typesetting. A profitable and productive one.

Directory of word processing media interfaces to phototypesetting

Compugraphic Corp.
80 Industrial Way
Wilmington, Massachusetts 01887
(617) 944-6555
Redactron cassette reader interfaced to CompuTape phototypesetter

Dymo Graphic Systems, Inc.
355 Middlesex Avenue
Wilmington, Massachusetts 01887
(617) 933-7000
Redactron cassette reader interfaced to Pacesetter line of phototypesetters

G.O. Graphics, Inc.
703 Massachusetts Avenue
Lexington, Massachusetts 02173
(617) 861-7757
Universal Word Processing Interface for reading Redactron, Wang and Xerox cassettes interfaced to most phototypesetters and related peripherals, including paper tape punch

Graphic Products Corporation
522 Cottage Grove Road
Bloomfield, Connecticut 06002
(203) 243-0730
IBM MT/ST cartridge and MC/ST card reader to paper tape converter

Graphic Systems, Inc.
Executive Drive
Hudson, New Hampshire 03051
(603) 889-8550
Redactron cassette reader interfaced directly to System 1 computer/typesetter, and Redactron read/write to GSI video editor

GTCO Corporation
1055–1st Avenue
Rockville, Maryland 10850
(301) 424-7077
IBM MT/ST cartridge reader for direct interface to most phototypesetters or peripherals

Mergenthaler Linotype Company
Mergenthaler Drive
Plainview, New York 11803
(516) 694-1300
IBM MT/ST cartridge reader interfaced to V-I-P phototypesetter

Raymond Automation Laboratories, Inc.
7 Bridge Street
Glen Cove, New York 11542
(516) 671-8044
Redactron cassette reader interfaced directly to most phototypesetters, computers or related peripherals

Varisystems Corporation
80 Skyline Drive
Plainview, New York 11803
(516) 931-7200
IBM MT/ST and MC/ST cartridge and card reader, Redactron cassette reader interfaced to Varicomp line of video editors and other devices

Varityper Division, A-M
11 Mt Pleasant Avenue
Hanover, New Jersey 07936
(201) 887-8000
Redactron cassette reader interfaced to Edit/Set terminal, A-M 744/8 typesetter and other devices.

Methods of interfacing word processing to automated typesetting

1	**CASSETTE— Direct to typesetter**	Stand-alone text editing word processor *CPT, Redactron, Wang, Xerox*	*Cassette*	Cassette Reader — CONNECTED —	Typesetter				
2	**CASSETTE— To paper tape** *Same unit*	Stand-alone text editing word processor *Wang*	*Cassette* — SAME UNIT —	Paper tape Punch	*Paper tape*	Typesetter or Video editor			
3	**CASSETTE— To paper tape** *Separate units*	Stand-alone text editing word processor *Redactron, Wang, Xerox*	*Cassette*	Cassette Reader — CONNECTED —	Paper tape Punch	*Paper tape*	Typesetter or Video editor		
4	**CASSETTE— To video editor**	Stand-alone text editing word processor *Redactron, Wang, Xerox*	*Cassette*	Cassette Reader — CONNECTED —	Video editor — CONNECTED —	Paper tape Punch	*Paper tape*	Typesetter	
5	**CASSETTE— Direct to computer**	Stand-alone text editing word processor *Redactron*	*Cassette*	Cassette Reader — CONNECTED —	Computer	To magnetic storage, electronic editing, or output as line printer or typesetter			
6	**CARD— To paper tape**	Stand-alone text editing word processor *IBM*	*Card*	Card Reader — CONNECTED —	Paper tape Punch	*Paper tape*	Typesetter or Video editor		
7	**CARD— To video editor**	Stand-alone text editing word processor *IBM*	*Card*	Card Reader — CONNECTED —	Video editor	Paper tape Punch	*Paper tape*	Typesetter	
8	**CARD— To cassette**	Stand-alone text editing word processor *Redactron* — SAME UNIT —	*Card*	*Cassette*	Methods 1, 2, 4, 5				
9	**CARTRIDGE— Direct to typesetter**	Stand-alone text editing word processor *IBM*	*Cartridge*	Cartridge Reader — CONNECTED —	Typesetter				
10	**CARTRIDGE— To paper tape**	Stand-alone text editing word processor *IBM*	*Cartridge*	Cartridge Reader — CONNECTED —	Paper tape Punch	*Paper tape*	Typesetter, or Video Editor		
11	**CARTRIDGE— To cassette**	Stand-alone text editing word processor *IBM*	Redactron Converter	*Cassette (Redactron)*					
12	**SHARED LOGIC— Direct to typesetter**	Shared logic text editing system — CONNECTED — *ICS*	Typesetter						
13	**SHARED LOGIC— To media**	Shared logic text editing system *ICS*	*Media*	Typesetter					
14	**MEDIA— Direct to computer**	Stand-alone text editing word processor *Redactron, Wang, Xerox*	Media *Card, Cassette, or Cartridge*	Media Reader or converted to paper tape	Computer	Typesetter			
15	**TELE-COMMUNICATIONS**	Stand-alone text editing word processor — SAME UNIT — *Redactron, Wang, IBM*	*Media*	Modem	Telephone line	Modem	*Media*	Another Stand-alone text editing word processor or computer	

Cassette readers supplied with typesetters from Compugraphic, Dymo, GSI, Mergenthaler, Varityper, or via cassette interfaces from G.O. Graphics or Raymond Automation Labs

G.O. Graphics cassette reader connected to paper tape punch

Cassette readers supplied with video editors from Varisystems and Varityper, or via G.O. Graphics or Raymond Automation Labs cassette readers

Raymond Automation Labs

Graphic Products

Varisystems

Cartridge readers supplied with typesetters from Mergenthaler and no-longer-supplied Singer units, or via GTCO cartridge reader

Graphic Products